In the Specification:

Please amend the title to:

~~System and~~ Method for Economically Viable and Environmentally Friendly Central Processing of Home Laundry

First line under the title, please add the following sentence for the claim of priority:

This application is a divisional of U.S. Patent Appl. Ser. No. 09/949,746, filed September 10, 2001, which claims the benefit of U.S. Prov. Appl. Ser. No. 60/262,613 filed on January 18, 2001.

On page 2, starting on line 11, added two new paragraphs that are based on the original independent claims:

The present invention provides a central laundry processing system comprising at least one wash vessel; at least one detergent initially disposed in the at least one wash vessel; and at least one wash loop wherein the at least one wash loop comprises at least one wash effluent vessel in fluid communication with the at least one wash vessel, at least one wash filter in fluid communication with the at least one wash effluent vessel, and at least one wash permeate vessel in fluid communication with the at least one wash filter and the at least one wash vessel.

The invention also provides a method of processing laundry which comprises the steps of washing a first load of laundry with a detergent in at least one wash vessel to produce a first clean load of laundry and a first wash effluent; passing the first wash effluent through at least one wash filter, producing a first wash permeate and a first wash retentate; and rinsing the first clean load of laundry to produce a first rinsed load of laundry and a first rinse effluent.

On page 5, starting on line 12, change paragraph as shown:

For example, the filter size affects the size of contaminants and detergent ingredients that are returned to washer in water. The filter size may have the following effects: about

one micron filters remove hair, pollen, and sand; about 0.1 micron filters remove most bacteria and dust; about 0.01 micron filters ~~removes~~ remove viruses and carbon black; and about 0.001 micron filters remove synthetic dye and surfactants. Though smaller pore sizes reduce water flux during filtration, those skilled in the art will recognize the benefits of selecting a certain filter depending on which contaminants and detergent ingredients that are desired to be returned to the wash vessel in the water. Though a preferred range of filters is about .005 to about 5 microns, a more preferred filter size is about .01 to about 0.2 microns which allows the removal of dirt, viruses, and bacteria without removing most surfactant or similar cleaning agent and also allows reasonable water flux.

On page 6, starting on line 16, change paragraph as shown:

Detergent type determines cleaning profile achieved in laundry process. Notably, the detergent may be a powder or a liquid. Preferably, the detergent comprises: surfactants such as anionic, nonionic, cationic, phosphates, and/or amphoteric surfactants capable of providing cleaning and foaming; builders such as sodium carbonate, zeolite, and/or soda ash capable of minimizing the effects of water hardness and minimizing soil redeposition; hydrotropes capable of increasing solubility of ingredients in liquid formulations; fluorescent whitening agents to whiten fabrics; enzymes to help the surfactants clean tough stains and soils; polymers such as polyvinyl pyrrolidone, carboxymethylcellulose or polyacrylate capable of preventing soil redeposition and dye transfer; perfumes capable of adding fragrance to clothing; bleach containing chlorine or peroxygen compounds capable of whitening fabric; and/or a defoamer such as soap or silicon oil. Preferably, all of these ingredients can be used in the wash recycle. Chlorine bleach should be added separately in the wash cycle from the rest of the ingredients for optimal performance. In a most preferred embodiment, the use of liquid detergent with no zeolite (because zeolite may clog the filter and is not necessary in soft water), chlorine bleach used in last part of wash cycle, and nonionic surfactants and silicone defoamers that provide the preferred low foaming in soft water are used. Although substantially any laundry detergent may be used in the process of the invention, liquid laundry detergents are preferred. A most preferred liquid laundry detergent is liquid Procter & Gamble's Tide High Efficiency™ detergent ~~known is~~ known as Tide HE™ detergent. Additional detergents such as Unilever's Wisk™ are envisioned to be within the scope of the invention. Those skilled in the art will recognize that virtually any detergent comprising at least one surfactant may benefit from the present invention.

On page 7, starting on line 21, change paragraph as shown:

Washing temperature affects the level of cleaning and bleaching. The washing temperature (i.e. wash loop) may be between about 10°C and about 90°C; approximately 40°C is preferred to give good cleaning and chlorine bleaching without excessive wear on the clothes. Rinsing temperature has less impact than washing temperature. Lower temperatures mean less energy requirements. Though the rinsing temperature (i.e. rinse loop) may be between about 10°C and about 90°C, approximately 25°C will provide good rinsing with little waste of energy. Filtration temperature affects the rate of filtration. Higher temperatures may increase water flux. Though the filtration temperature may be between about 10°C and about 90°C, approximately 30°C provides good water flux with little wear on the filter.

On page 16, starting on line 20, change paragraph as shown:

Next, about 20 ml of surfactant solution (water sample) was added to a 100 ml graduated cylinder and the weight of the solution sample was recorded. Then, about 20 ml of mixed indicator solution and 15 ml chloroform was added to the graduated cylinder. Titration was begun by adding approximately 2 ml of hyamine solution to the cylinder, capping and inverting the cylinder about 10 times, making sure all liquids were mixed. The cylinder was vented after the first inversion as some pressure will build up and cause leakage if not vented. Hyamine solution was added in additional small quantities, mixing well after each addition. The endpoint was reached when the bottom chloroform layer changed color from pink to gray-blue.

On page 17, starting on line 16, change paragraph as shown:

The active matter of the wash water, permeate, and retentate, are reflected in the following Table 3:

TABLE 3: Active Matter

Run No.	Sample	Active matter, ppm	Volume, L (gal)	Active matter balance calculated from	
				Water influent to washing Machine, ppm	water effluent from filtration , ppm
-	Fresh water	-	-	-	-
1	Wash water_1	196.00	56.8 (15)	305.0	112.7
	Permeate	49.46	94.6 (25)		
	Retentate_1	90.66	18.9 (5)		
2	Wash water_2	227.51	56.8 (15)	354.46	180.73
	Permeate_2	68.04	75.7 (20)		
	Retentate_2	135.01	37.9 (10)		
3	Wash water_3	280.00	56.8 (15)	373.04	173.17
	Permeate_3	96.00	56.8 (15)		
	Retentate_3	231.50	18.9 (5)		
4	Wash water_4	277.26	56.8 (15)	401.00	227.89
	Permeate_4	115.92	56.8 (15)		
	Retentate_4	335.92	18.9 (5)		

"Wash water" (in column 2) = water samples collected right after wash (water effluent from wash vessel)

"~~Wash water~~ Water influent to washing machine" = water samples containing 87.5 grams of detergent and retained detergent from the previous wash

"Water effluent from filtration" = water samples from filtration unit downstream, number in this column refers to the summation of the active matter content in the permeate and the retentate.

On page 19, starting on line 2, change paragraph as shown:

In subcolumn 2, the numerical values were calculated from the summation of active matter content in 25 gal of permeate and that in 5 gal of retentate. A certain amount of fresh water was added into the wash water before going to the membrane unit. Accordingly, the concentration needed to be adjusted in the original volume (15 gal). Comparing active matter content with each other:

$$\frac{([49.96]\ \underline{49.46} * 25) + (90.66 * 5)}{30} = [56.73]\ \underline{56.33}\ \text{ppm (after diluted)}$$

$$(\text{~~56.73~~}\ \underline{56.33} * 30/15) = \text{~~112..7~~}\ \underline{112.7}\ \text{ppm}$$

On page 19, starting on line 19, change paragraph as shown (*bracketed text is in original version, this Amendment only changes the bracketed number in the last line of the paragraph*):

The amount of active matter retained in the clothes was calculated by:

[active matter in water influent to washing machine, shown in subcolumn 1] -

[active matter in wash water, shown in column 3].

For example, for run #1,

[active matter retained in the clothes] = 305-196=109 ppm

% retained (based on the water influent to washing machine)

= 109/305*100 = ~~35.72%~~ 35.74%

On page 19, starting on line 27, change paragraph as shown (*bracketed text is in original version, this Amendment only changes the bracketed number in the last line of the paragraph*):

The amount of active matter retained in the membrane unit was calculated by

[active matter in water before going to the filtration unit, shown in column 3]

-[active matter in water effluent from filtration, shown in subcolumn 2]

For example, run # 1,

[active matter retained in the filtration unit] = 196-112.7 = 83.3 ppm

% retained (based on the water inlet of filtration)

= 83.3/196*100 = ~~83.3 ppm~~ 42.5 %

On page 20, starting on line 8, change paragraph as shown:

Approximately 2/3 of the original surfactant was in the wash water effluent and 1/3 in the clothing and accompanying retained water:

TABLE 4: Amount of Active Matter Retained

Run No.	Amount of active matter retained in			
	Clothes*		filtration unit**	
	ppm	%	ppm	%
1	109	35.74	~~84~~ 83.3	~~42.86~~ 42.5
2	127	35.83	46.8	20.57
3	93	24.93	106.8	38.14
4	123.7	30.85	49.4	17.82

* Numbers represented as the difference amount of active matter in ppm and percent of the wash influent and effluent

** Numbers represented as the difference amount of active matter in ppm and percent of the filtration upstream and downstream